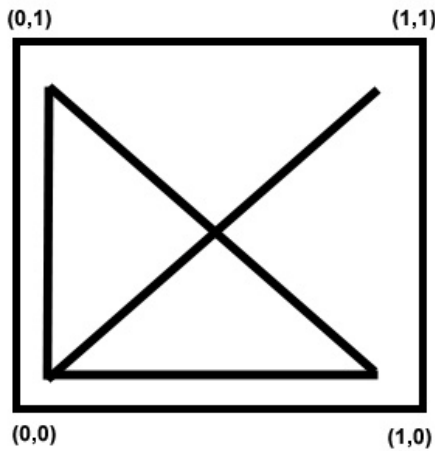


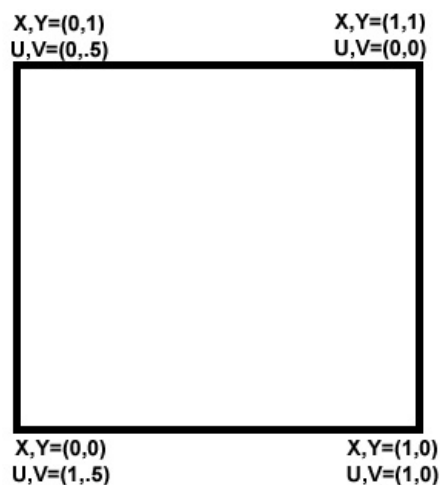
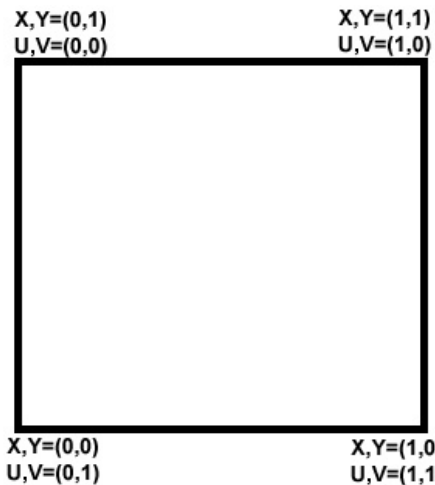
Homework 4: Shaders

Due Date: Friday, October 26th

1. Explain the difference between a vertex and fragment shader.
2. Given a normal vector $N \langle 1, 3, 7 \rangle$ and a light source vector $L \langle 0, 2, 5 \rangle$. Compute the reflection vector and the half vector. Don't forget to normalize.
3. Describe what I might do if I wanted to make my object bumpy, but not change the actual object. (You don't need to say anything about implementation, just theory)
4. This is a texture map with u, v coordinates listed:



- a. Draw the approximate mapping on each quad if they were textured using the above image.



- b. Describe the difference between bump mapping and texture mapping.